



Bioethics Meeting

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20014

January 16, 1975

Dr. Aaron Shatkin
Roche Institute of Molecular Biology
Nutley, New Jersey 07110

Dear Aaron:

This letter is to try to communicate some of my thoughts on the recombinant DNA problem.

I think that the decisions on handling this technology must be made from a very conservative, self-defensive point of view. Public opinion and governmental policies are clearly moving away from unquestioning approval of all actions of biomedical scientists, as evidenced by the Boston cases and politicized setting of research priorities.

It is very significant that in popular art there are two stereotypes of the research scientist, which are diametrically opposed to each other: the brilliant, self-effacing servant of mankind (Arrowsmith, the mythologized Jonas Salk, Albert Sabin in many parts of the world), and the equally brilliant mad scientist, beginning with Dr. Frankenstein and presented in hundreds of science fiction movies on brain transplants, immortality serums, and monster creations. Is this paradoxical view only a reflection of the sad fact that it is far easier for an artist to make evil interesting and exciting than it is to make "goodness" worth looking at twice? Is it an example of endowing the mysterious with extreme attributes? Or is it an expression of an attitude that we scientists dare ignore only at great risk? I suspect the latter is true.

Where is the dividing line between Arrowsmith and Dr. Frankenstein? At what unhappy point does the public decide that the mad scientist stereotype is the true one? The answer of course hinges on motivation: the healer-saint has no ego; the experiment produces monsters when it is done to satisfy the scientist's ego.

What I am saying is that I think there is a great potential undercurrent of distrust of the biomedical scientist, which has been only dimly recognized. The danger posed by the nuclear physicist is the precedent; the avalanche of medical ethical problems raised in the past few years is an indication that the potential impact of biomedical research is widely recognized. The minute that the public and its governmental representatives decide that the biomedical community has been hypocritical in making its life and death decisions - that is, that we are acting to further our own ego interests while justifying our actions by citing the common good (i.e., the healer saint is unmasked as the mad scientist in disguise) we are in for a violent reaction.

I think that the major guiding principle in dealing with these problems involving unevaluatable theoretical risks is: We must be sure that all possible measures are being taken to assure that any conceivable damage is far less than the foreseeable benefits. Think of a risk-benefit analysis in these terms:

	<u>Benefit</u>	<u>Risk</u>
Known or likely	A	C
Theoretical	B	D

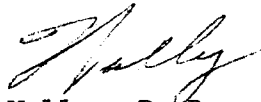
The comparison must be between D and A, not A-C, B-C, or B-D.

To minimize D/A, ways should be sought to make D=0. This requires moving slowly, one step at a time, based on what is known to be without risk.

I think that a research program, whose objective is to develop a "risk-free" bacterium-plasmid system, is the way to go, and that the moratorium should stay in effect until this goal is attained. Given the knowledge and technology in bacterial genetics, I would imagine that many non-commensal bacteria could be found carrying suitable plasmids that cannot be transferred to commensals, and that the details of these systems could be worked out and a prototype selected within

two years. Given such an organism together with research data on how it acts when fed to and injected into mammals, the field could be opened completely, without committees, inspectors, licenses, and the rest of the horrors. I don't think that two years, or even five, would be too high a price.

Sincerely yours,

A handwritten signature in cursive script, appearing to read 'W. P. Rowe', written in dark ink.

Wallace P. Rowe, M.D.
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Diseases
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and Infectious Diseases